NASA/DoD Aerospace Knowledge Diffusion Research Project

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Summary Report to Phase 3 Academic Library Respondents Including Frequency Distributions

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THE NASA/DoD AEROSPACE KNOWLEDGE DIFFUSION RESEARCH PROJECT

Report to Phase Three Respondents

Academic Librarians and Information Specialists

Introduction

This project, started in 1989, is designed to explore the diffusion of scientific and technical information (STI) throughout the aerospace community. The increased international competition and cooperation in the industry promises to significantly affect the STI demands of U.S. aerospace engineers and scientists. Therefore, it is important to understand the aerospace knowledge diffusion process itself and its implications at the individual, organizational, national and international levels.

The project is planned in four phases. Phase 1 is designed to study the information-seeking behaviors of U.S. aerospace engineers and scientists. Phase 2 is concerned primarily with the transfer of scientific and technical information in industry and government and the role of librarians and technical information specialists in that transfer. Phase 3, reported in part here, examines the use of STI in the academic aerospace community. Phase 4 will examine knowledge, production, use and transfer of STI among non-U.S. aerospace organizations and aerospace engineers and scientists.

Part I

Data Collection Methods

In Phase 3 of this project, three questionnaires were sent to three groups in the academic aerospace community. The first group was composed of information intermediaries in academic engineering libraries, the second group included faculty in aerospace departments, and the third group was composed of students enrolled in a capstone design course.

The librarians surveyed were information intermediaries at engineering or aerospace libraries at institutions where a capstone design course was funded in 1989-90 by the NASA/University Space Research Association (NASA/USRA) and in universities listed by the American Society of Engineering Education (ASEE) as ABET accredited aerospace programs. Libraries at each institution were called and the name of the librarian in charge of aerospace materials was obtained. This person was mailed the questionnaire. Of the 70 eligible respondents, 68 returned the questionnaire. Data collection began in late April 1990 and continued through May 1990. The results of this study are reported here.

The faculty sample was obtained primarily from institutions with NASA/USRA funded capstone courses in aerospace departments. Also included were some institutions listed as accredited by ASEE. Department chairs and NASA/USRA instructors were called and lists of their faculties were obtained when possible. The list was compared to a list of faculty surveyed for Phase 1 of this project and those who had been surveyed previously were eliminated. Data collection began in mid-April of 1990 and continued through September 1990. Questionnaires were sent to 501 faculty, and 275 faculty responded to the survey.

The student sample included those students enrolled in an NASA/USRA funded undergraduate capstone design course in Spring 1990. Telephone calls and faxes to the course instructors enlisted the participation of the 39 eligible instructors who agreed to distribute the questionnaire. (Some instructors could not participate because they had taught their capstone course during the fall semester or did not have regularly scheduled meetings.) Data were collected during April and May 1990.

There were 640 student resp ents from 29 institutions. The results of the faculty and student studies are reported separately in Report 9 of this series, but are also included here when relevant.

Description of the Information Centers

Eighteen percent of the libraries surveyed were engineering libraries; 19 percent were engineering/science libraries, and 47 percent were university libraries. Only two percent were departmental libraries. Four percent were aeronautical libraries, six percent were branch libraries and four percent were classified as other. Seventy-nine percent of the libraries were "Superintendent of Documents Depository Libraries."

The Librarians

Sixty-four percent of the respondents were women. Seventeen percent had one to five years of professional library experience. Forty-eight percent had been in their current positions five years or less. Eighty-eight percent of the librarians held the MLS. Sixty percent were ALA members and 27 percent were members of ASEE. Forty-one percent were members of SLA.

Part II

The Questionnaire

Rating of Characteristics of Library

Librarians were asked to rate their libraries on several characteristics. Only 20 percent rated their library high on funding for staff salaries. Staff sizes were highly ranked by 23 percent. More library staffs had science backgrounds than aerospace backgrounds. Forty-two percent ranked their staff as good in the sciences, and only 19 percent ranked them good in aerospace. Twenty-four percent gave good marks for funding of materials and equipment. Fifty-four percent thought funding was good for on-line searches.

The librarians gave high marks to the services they provided to users. Eighty percent of the librarians ranked their library as excellent in supplying requested information. Forty-four percent rated their libraries high in turnaround time and 42 percent gave excellent marks for state-of-the-art user services. However, only 21 percent thought alerting services deserved the high ratings.

Rating of Library Services
(percents)

Characteristics	Excellent
Staff salaries	19.7
Staff size	22.8
Aerospace experience	18.5
Science background	41.5
Materials/Equipment	24.2
Searching on-line	54.6
Alerting services	21.2
Information supplied on request	80.3

Fifty-seven percent of the librarians gave their libraries excellent marks for orientation and instruction. The librarians gave themselves low marks for surveying users' needs (27 percent

excellent) and attending user meetings (18 percent excellent). Eighty-four percent of the libraries provide instruction in engineering information and materials resources.

NASA Technical Reports

The librarians were asked several questions relating to the use of NASA technical reports in the library. Thirty-eight percent reported that NASA technical reports received heavy use. Most libraries (63 percent) receive NASA technical reports directly from NASA and 57 percent get them through the Government Printing Office. (More than one could be marked.) Only 11 percent of the librarians reported that an aeronautical/astronautical engineering department maintained a separate collection of NASA reports.

One important question, asked of respondents in all phases of this project, concerns the influence of several factors on the use of NASA technical reports. Eighty percent of the librarians reported that accessibility is an important factor that influences the use of NASA reports. Relevance was considered an important factor by 81 percent of the librarians. Sixty-three percent reported familiarity or experience with the reports was an important factor in use of NASA technical reports. Technical quality was ranked important by 64 percent. Students and faculty were asked to rate the NASA technical reports on these factors. NASA technical reports did not receive high ratings from students and faculty on the factors which the librarians felt influenced use.

Factors That Influenced Use of NASA Technical Reports
(percents)

Factors	
Accessibility	79.7
Ease of use	49.2
Expense	43.5
Familiarity/experience	62.9
Technical quality	63.7
Comprehensiveness	64.3
Relevance	80.7

Ratings of NASA Technical Reports
(percents)

Factors	Faculty	Students
Accessibility	50.7	36.5
Ease of use	62.1	46.5
Expense	61.6	68.1
Familiarity/experience	57.0	31.7
Technical quality	71.4	67.8
Comprehensiveness	53.6	52.8
Relevance	56.0	54.5

Interaction with NASA

Only 15 percent of the librarians reported that NASA contacted them during the last year concerning the transfer of research findings. Over a third initiated contact with NASA during the past year. When asked to rate NASA's understanding of the part librarians play in meeting the needs of researchers (either students or faculty), the librarians gave NASA low marks. Only 24 percent rated NASA high for its understanding of the librarians' interactions with students, and only 33 percent thought NASA understood well the interaction between librarians and faculty.

The librarians did not rate NASA any higher on their direct understanding of the technical information needs of students and faculty. Twenty-three percent thought NASA devoted extensive effort to understanding students' technical information needs. Only 27 percent thought NASA devoted extensive effort to understanding faculty needs. Few librarians thought NASA devoted much effort to involving the librarians in transferring the results of NASA research to students (13 percent) and faculty (13 percent).

Librarians' Rating of NASA's Role in Research Dissemination For: (percents)

Factors	Students	Faculty
NASA's understanding of librarians' role	23.7	32.5
NASA's understanding of researchers' needs	22.7	27.3
NASA's efforts to involve librarians in knowledge transfer	12.8	13.0

Students, Faculty, and the Library

It is valuable to compare the student and faculty use of the library's resources as reported by the users themselves and as viewed by the librarians. Forty-four percent of the students reported they frequently used the university library, and 45 percent reported frequent use of the departmental or engineering library. Only 12 percent indicated they consulted with the librarians frequently. Fifty-five percent ranked the university library as important in meeting their engineering information needs, and 22 percent ranked the librarians as important in meeting their engineering information needs. Fifty percent of the librarians rated themselves as having extensive knowledge of student needs.

The faculty reported using the library at rates similar to those of the students. Forty-five percent used the university library frequently. However, only 9 percent reported frequent consultation with the librarians. When asked to rate their importance, 65 percent of the faculty rated libraries as important, and 23 percent rated librarians as important. Forty-three percent of the librarians rated themselves as having extensive knowledge of the technical information needs of the faculty. The results indicate a need for more communication between faculty, students, and librarians.

The librarians were asked to evaluate various print and electronic sources in terms of helping students and faculty with their engineering information needs. Students and faculty were asked how often they had used the same sources. (Students and faculty could answer that they "were not familiar" with the source.) Seventy-four percent of librarians felt Applied Science and Technology Index was important but 57 percent of students were not familiar with it. Only ten percent had used the source

more than five times. Thirty-seven percent of the faculty were not familiar with the Index and only 6 percent had used it more than five times. Ninety-three percent of students were not familiar with COMPENDEX while 89 percent of the librarians rated the source as important in satisfying student needs. Seventy percent of the faculty were not familiar with the resource. Clearly, several resources the librarians classify as important are not being used by researchers working without librarian assistance. Researchers are either using other sources or they cannot find available information.

Importance of Print and Electronic Sources
(percents)

	Important to Librarians	Student Uses	Students Not Familiar With Source
COMPENDEX	88.6	1.9	93.1
INSPEC	88.1	0.5	94.2
Engineering Index	86.7	34.3	56.6
Applied Science and Technology Index	73.5	34.1	56.6
NASA STAR	72.8	20.9	70.2
	Important to Librarians	**Faculty Uses**	**Faculty Not Familiar With Source**
COMPENDEX	88.6	4.0	69.7
INSPEC	88.1	2.4	72.5
Engineering Index	86.7	41.3	27.8
Applied Science and Technology Index	73.5	32.2	37.3
NASA STAR	72.8	33.9	31.5

Both the students and the librarians were asked about their use of electronic databases. Fifty-four percent of the librarians reported that all student searches were done through the library staff. Yet only three percent of students said all their searches were done through librarians. Twenty percent of the students claimed they did all their own searches. Forty-one percent of the students said they did not use electronic databases. Nine percent of the faculty said they did all electronic searches themselves. Thirty-four percent of the faculty said they did not use electronic databases. Forty-one percent of the faculty respondents reported they did some or all of their electronic searches through a librarian.

Library Services

The librarians were asked about several services their libraries provide for students. Forty-five percent reported the library did not offer a library skills course. All libraries provided bibliographic instruction. Almost all offer handouts, library guides, and mediated on-line searching.

Some services available for faculty were not available to students. Only 19 percent of librarians reported that alerting services were provided to students while 50 percent said alerting services were provided for the engineering faculty. However, most services available to faculty were available to the students as well. Eighty-one percent provide document order and delivery to students and 86 percent provide the service for faculty.

Library Services Provided to:
(percents)

	Students	Faculty
Alerting services	18.6	50.0
Bibliographic instruction	100.0	82.0
Handouts and library guides	97.0	95.4
In-House STI and routing services	11.3	39.7
Mediated on-line searching	96.9	96.9
Locating sources	97.0	100.0
Identifying documents	97.0	98.5
Acquiring information	97.0	98.5

Competition to Library Services

Several questions were asked of the librarians about potential competition from other information sources. Most alternate sources were seen to affect faculty library use rather than student use. Only 24 percent of the librarians saw students' personal collections as competition while 86 percent of the librarians saw the faculty's personal collections as competition. Students reported less use of their personal collections and ranked them as less important than did faculty.

Competition, Reported by Librarians, to Use of Library Resources by:
(percents)

Competition	Students	Faculty
The "old boy" network	32.2	77.0
Personal collections	24.2	85.9
Research assistants	25.0	44.1
Department or project libraries	42.6	64.5
Internet/NSFNET	13.6	37.3
On-line access to library catalog	40.3	45.2

Part III
Summary and Comparisons

Phase 3 of the NASA/DoD Aerospace Knowledge Diffusion Research Project was designed in part to discern differences between the perceptions of the users (e.g., faculty and students) of the academic libraries and the librarians who staff them. Some broad patterns have emerged.

First, both students and faculty alike report limited use of electronic databases and other library resources during their information searches. But librarians regard many of these same resources as important to them when answering student and faculty needs. It is likely, then, that when students and faculty do unassisted information searches they are missing important resources for locating relevant STI.

Secondly, some services that might increase student and faculty use of libraries are not available. Nineteen percent of the libraries do not provide a general library tour. Forty-five percent do not have a library skills course. Twenty-two percent do not provide an introduction to engineering information resources and materials. If librarians are able to increase student and faculty awareness

of the library's resources via courses or tours, use of the library's resources might increase dramatically.

ADDITIONAL INFORMATION ON THIS PROJECT

Phase 1 of this project is concerned primarily with the use and rating of STI by aerospace engineers and scientists. AIAA members were asked to review several information sources, to rate them and to describe the patterns they use to gather the information they need. Analysis of these data is underway.

Phase 2 of this project focuses on the role of industry and government information intermediaries, (librarians) and technical information specialists in the transfer of STI. Intermediaries from government and industry libraries with aerospace collections from across the United States and Canada were asked to evaluate many of the information sources reviewed by the AIAA members. In addition, they provided us with information about how information sources are used in their libraries. Analysis of these data is currently being conducted.

Phase 4 began in Summer 1990 with pilot surveys in Europe and Japan. A study of aerospace engineers and scientists in Britain is underway. Additional surveys in NATO countries and Japan are planned over the next few years.

If you would like additional information about any phase of this study or copies of reports that examine these data in more detail, please contact:

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We welcome your comments and suggestions.

NASA/DoD AEROSPACE KNOWLEDGE DIFFUSION RESEARCH PROJECT PUBLICATIONS

Reports

Pinelli, Thomas E.; Myron Glassman; Walter E. Oliu; and Rebecca O. Barclay. **Technical Communications in Aeronautics: Results of an Exploratory Study.** Washington, DC: National Aeronautics and Space Administration. NASA TM-101534, **Report 1, Part 1.** February 1989. 106 p. (Available from NTIS, Springfield, VA; 89N26772.)

Pinelli, Thomas E.; Myron Glassman; Walter E. Oliu; and Rebecca O. Barclay. **Technical Communications in Aeronautics: Results of an Exploratory Study.** Washington, DC: National Aeronautics and Space Administration. NASA TM-101534, **Report 1, Part 2.** February 1989. 84 p. (Available from NTIS, Springfield, VA; 89N26773.)

Pinelli, Thomas E.; Myron Glassman; Rebecca O. Barclay; and Walter E. Oliu. **Technical Communications in Aeronautics: Results of an Exploratory Study -- An Analysis of Managers' and Nonmanagers' Responses.** Washington, DC: National Aeronautics and Space Administration. NASA TM-101625, **Report 2.** August 1989. 58 p. (Available from NTIS, Springfield, VA; 90N11647.)

Pinelli, Thomas E.; Myron Glassman; Rebecca O. Barclay; and Walter E. Oliu. **Technical Communications in Aeronautics: Results of an Exploratory Study -- An Analysis of Profit Managers' and Nonprofit Managers' Responses.** Washington, DC: National Aeronautics and Space Administration. NASA TM-101626, **Report 3.** October 1989. 71 p. (Available from NTIS, Springfield, VA; 90N15848.)

Pinelli, Thomas E.; John M. Kennedy; and Terry F. White. **Summary Report to Phase 1 Respondents.** Washington, DC: National Aeronautics and Space Administration. NASA TM-102772, **Report 4.** January 1991. 10 p. (Available from NTIS, Springfield, VA; 91N17835.)

Pinelli, Thomas E.; John M. Kennedy; and Terry F. White. **Summary Report to Phase 1 Respondents Including Frequency Distributions.** Washington, DC: National Aeronautics and Space Administration. NASA TM-102773, **Report 5.** January 1991. 53 p. (Available from NTIS, Springfield, VA; 91N20988.)

Pinelli, Thomas E. **The Relationship Between the Use of U.S. Government Technical Reports by U.S. Aerospace Engineers and Scientists and Selected Institutional and Sociometric Variables.** Washington, DC: National Aeronautics and Space Administration. NASA TM-102774, **Report 6.** January 1991. 350 p. (Available from NTIS, Springfield, VA; 91N18898.)

Pinelli, Thomas E.; John M. Kennedy; and Terry F. White. **Summary Report to Phase 2 Respondents Including Frequency Distributions.** Washington, DC: National Aeronautics and Space Administration. NASA TM-104063, **Report 7.** June 1991. 42 p. (Available from NTIS, Springfield, VA; 91N22931.)

Pinelli, Thomas E.; John M. Kennedy; and Terry F. White. **Summary Report to Phase 3 Faculty and Student Respondents.** Washington, DC: National Aeronautics and Space Administration. NASA TM-104085, **Report 8.** June 1991. 11 p. (Available from NTIS, Springfield, VA;)

Pinelli, Thomas E.; John M. Kennedy; and Terry F. White. **Summary Report to Phase 3 Faculty and Student Respondents Including Frequency Distributions.** Washington, DC: National Aeronautics and Space Administration. NASA TM-104086, **Report 9.** June 1991. 42 p. (Available from NTIS, Springfield, VA.)

Papers

Pinelli, Thomas E.; Myron Glassman; Rebecca O. Barclay; and Walter E. Oliu. **The Value of Scientific and Technical Information (STI), Its Relationship to Research and Development (R&D), and Its Use by U.S. Aerospace Engineers and Scientists. Paper 1.** Paper presented at the European Forum "External Information: A Decision Tool" 19 January 1990, Strasbourg, France.

Blados, Walter R.; Thomas E. Pinelli; John M. Kennedy; and Rebecca O. Barclay. **External Information Sources and Aerospace R&D: The Use and Importance of Technical Reports by U.S. Aerospace Engineers and Scientists. Paper 2.** Paper prepared for the 68th AGARD National Delegates Board Meeting, 29 March 1990, Toulouse, France.

Kennedy, John M. and Thomas E. Pinelli. **The Impact of a Sponsor Letter on Mail Survey Response Rates. Paper 3.** Paper presented at the Annual Meeting of the American Association for Public Opinion Research, Lancaster, PA, May 19, 1990.

Pinelli, Thomas E. and John M. Kennedy. **Aerospace Librarians and Technical Information Specialists as Information Intermediaries: A Report of Phase 2 Activities of the NASA/DoD Aerospace Knowledge Diffusion Research Project. Paper 4.** Paper presented at the Special Libraries Association, Aerospace Division - 81st Annual Conference, Pittsburgh, PA, June 13, 1990.

Pinelli, Thomas E.; Rebecca O. Barclay; John M. Kennedy; and Myron Glassman. **Technical Communications in Aerospace: An Analysis of the Practices Reported by U.S. and European Aerospace Engineers and Scientists. Paper 5.** Paper presented at the International Professional Communication Conference (IPCC), Post House Hotel, Guilford, England, September 14, 1990.

Pinelli, Thomas E. and John M. Kennedy. **Aerospace Knowledge Diffusion in the Academic Community: A Report of Phase 3 Activities of the NASA/DoD Aerospace Knowledge Diffusion Research Project. Paper 6.** Paper presented at the 1990 Annual Conference of the American Society for Engineering Education - Engineering Libraries Division, Toronto, Canada, June 27, 1990.

Pinelli, Thomas E. and John M. Kennedy. **The NASA/DoD Aerospace Knowledge Diffusion Research Project: The DoD Perspective. Paper 7.** Paper presented at the Defense Technical Information Center (DTIC) 1990 Annual Users Training Conference, Alexandria, VA, November 1, 1990.

Pinelli, Thomas E.; John M. Kennedy; and Rebecca O. Barclay. **The Role of the Information Intermediary in the Diffusion of Aerospace Knowledge. Paper 8.** Reprinted from Science and Technology Libraries Volume 11, No. 2 (Winter) 1990: 59-76.

Eveland, J.D. and Thomas E. Pinelli. **Information Intermediaries and the Transfer of Aerospace Scientific and Technical Information (STI): A Report from the Field. Paper 9.** Paper Commissioned for Presentation at the 1991 NASA STI Annual Conference held at the NASA Marshall Space Flight Center, Huntsville, AL, April 9, 1991.

Pinelli, Thomas E.; John M. Kennedy; and Rebecca O. Barclay. **The NASA/DoD Aerospace Knowledge Diffusion Research Project. Paper 10.** Reprinted from Government Information Quarterly Volume 8, No 2 (1991): 219-233.

Pinelli, Thomas E. and John M. Kennedy. **The Voice of the User -- How U.S. Aerospace Engineers and Scientists View DoD Technical Reports. Paper 11.** Paper presented at the 1991 Defense Technical Information Center's (DTIC) Managers Planning Conference, Solomon's Island, MD, May 1, 1991.

Pinelli, Thomas E. and John M. Kennedy. **The Diffusion of Federally Funded Aerospace Research and Development (R&D) and the Information-Seeking Behavior of U.S. Aerospace Engineers and Scientists. Paper 12.** Paper presented at the Special Libraries Association (SLA) 82nd Annual Conference, San Antonio, TX, June 11, 1991.

Pinelli, Thomas E. **The Information-Seeking Habits and Practices of Engineers. Paper 13.** Reprinted from Science & Technology Libraries Volume 11, No. 3 (Spring) 1991: 5-25.

Barclay, Rebecca O.;Thomas E. Pinelli; David Elazar; and John M. Kennedy. **An Analysis of the Technical Communications Practices Reported by Israeli and U.S. Aerospace Engineers and Scientists. Paper 14.** Paper presented at the International Professional Communication Conference (IPCC), The Sheraton World Resort, Orlando, FL, November 1, 1991.

Barclay, Rebecca O.; Thomas E. Pinelli; Michael L. Keene; John M. Kennedy; and Myron Glassman. **Technical Communications in the International Workplace: Some Implications for Curriculum Development. Paper 15.** Reprinted from Technical Communication Volume 38, No. 3 (Third Quarter, August 1991): 324-335.

Pinelli, Thomas E.; John M. Kennedy; Rebecca O. Barclay; and Terry F. White. **Aerospace Knowledge Diffusion. Paper 16.** Reprinted from World Aerospace Technology '91: The International Review of Aerospace Design and Development Volume 1 (1991): 31-34.

Pinelli, Thomas E.; Rebecca O. Barclay; John M. Kennedy; Nanci Glassman; and Loren Demerath. **The Relationship Between Seven Variables and the Use of U.S. Government Technical Reports by U.S. Aerospace Engineers and Scientists. Paper 17.** Paper presented at the 54th Annual Meeting of the American Society for Information Science (ASIS), The Washington Hilton & Towers, Washington, DC, October 30, 1991.

Survey of Academic Aerospace Libraries
68 Respondents

INTERMEDIARY SURVEY

Which of the following best describes your library?	
Departmental Library	1
Aeronautical/Astronautical Library	3
Engineering Library	12
Engineering/Science Library	13
Branch Library	4
University Library	32
Other	3

Is your library a Superintendent of Document (SOD) depository library?	
Yes	53
No	14

Does your library provide instruction to students in how to use library resources and services?	Yes	No
	66	2
Is the instruction:		
Required	19	39
Elective	35	24
Non-credit	29	29
Credit	20	37
Part of an engineering course	41	18
Part of another course	34	23
Separate course	19	33

Does your library provide instruction in engineering information resources and materials resources?	Yes	No
	53	10
Is the instruction:		
Required	10	36
Elective	32	13
Non-credit	29	17
Credit	12	35
Part of an engineering course	42	8
Part of another course	24	21
Separate course	9	34

INTERMEDIARY SURVEY

Does your library subscribe to, automatically receive, purchase or otherwise obtain the following?

	Yes	No
NASA Technical Reports in Paper	45	18
NASA Technical Reports in Fiche	61	6
DoD Technical Reports in Paper	21	37
DoD Technical Reports in Fiche	36	33
FAA Technical Reports in Paper	19	34
FAA Technical Reports in Fiche	27	27
AGARD Technical Reports in Paper	35	21
AGARD Technical Reports in Fiche	25	32
US Aerospace Company Technical Reports	16	41
US University Technical Reports	30	27
AIAA Papers in Hard Copy	16	39
AIAA Papers in Fiche	18	38

Does your library subscribe to, automatically receive, purchase or otherwise obtain these foreign (non-US) technical reports?

	Yes	No
British ARC and RAE Reports	14	52
ESA Reports	10	54
French ONERA Reports	5	59
German DFVLR, DLR and MBB Reports	7	57
Japanese NAL Reports	7	57
Swedish NAL Reports	5	57

Does the aeronautical/astronautical engineering department maintain a NASA technical report collection separate from that which is kept in your library?

Yes	6
No	47

Which of the following best describes how your library routinely receives NASA technical reports?

	Circled
Directly from NASA	43
From NTIS	11
From GPO	39
Does not receive NASA Technical Reports	3

Which of the following best characterises the use of the NASA technical reports in your library?

Heavily Used 1	2	3	4	Not Used At All 5	Do Not Have
12	14	27	12	0	3

INTERMEDIARY SURVEY

Does your library subscribe to, automatically receive, purchase or otherwise obtain the following?

	Yes	No
NASA Technical Reports in Paper	45	18
NASA Technical Reports in Fiche	61	6
DoD Technical Reports in Paper	21	37
DoD Technical Reports in Fiche	36	33
FAA Technical Reports in Paper	19	34
FAA Technical Reports in Fiche	27	27
AGARD Technical Reports in Paper	35	21
AGARD Technical Reports in Fiche	25	32
US Aerospace Company Technical Reports	16	41
US University Technical Reports	30	27
AIAA Papers in Hard Copy	16	39
AIAA Papers in Fiche	18	38

Does your library subscribe to, automatically receive, purchase or otherwise obtain these foreign (non-US) technical reports?

	Yes	No
British ARC and RAE Reports	14	52
ESA Reports	10	54
French ONERA Reports	5	59
German DFULR, DLR and MBB Reports	7	57
Japanese NAL Reports	7	57
Swedish NAL Reports	5	57

Does the aeronautical/astronautical engineering department maintain a NASA technical report collection separate from that which is kept in your library?

Yes	6
No	47

Which of the following describes how your library routinely receives NASA technical reports?

	Circled
Directly from NASA	43
From NTIS	11
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Which of the following best characterizes the use of the NASA technical reports in your library?

Heavily Used 1	2	3	4	Not Used At All 5	Don't Have
12	14	27	12	0	3

INTERMEDIARY SURVEY

As an academic intermediary, how important to you are the following print sources in helping engineering students meet their engineering information needs?

	Very Important 1	2	3	4	Not At All Important 5	Do Not Have
Applied Science & Technology Index	36	14	11	2	1	4
Engineering Index	46	13	4	0	0	5
Government Reports Announcement and Index	24	15	15	4	1	8
International Aerospace Abstracts	24	24	3	5	1	11
NASA SP-7037	2	12	13	9	15	14
NASA SCAN	3	5	5	2	10	37
NASA STAR	31	17	7	7	0	4
Science Citation Index	22	17	9	8	2	9

As an academic intermediary, how important to you are the following electronic sources in helping engineering students meet their engineering information needs?

	Very Important 1	2	3	4	Not At All Important 5	Do Not Have
Aerospace Database	23	13	8	6	2	9
COMPENDEX	45	9	1	2	0	4
DTIC DROLS	3	1	3	3	6	42
INSPEC	38	14	2	2	0	3
NASA RECON	12	3	7	2	3	31
NTIS Online	28	18	7	5	0	6
SCISEARCH	18	17	10	11	1	3
Wilson Line Index	9	5	4	13	4	23
BRS including "After Dark"	10	6	2	8	3	30
DIALOG including "Knowledge Index"	37	7	0	2	3	12

Which of the following best represents your library's approach to paying for online search services to engineering students?	
Not offered	2
User pays nothing	8
User pays reduced costs	23
User pays all costs	25

Which of the following best characterizes your library's approach to providing online search services to engineering students?	
Not offered	3
Users do most searches	5
Users do half themselves, half with intermediary	3
Users do most searches through intermediary	15
Users do all searches through intermediary	36

INTERMEDIARY SURVEY

To what extent do you think the following factors influence the use of NASA technical reports in your library by engineering students in your institution?

	Greatly Influenced 1	2	3	4	Not Influenced 5
Accessibility	28	18	11	5	3
Ease of Use	12	13	15	9	10
Expense	9	10	6	10	25
Familiarity or Experience	14	18	19	9	3
Technical Quality or Reliability	11	21	16	4	2
Comprehensiveness	11	18	19	9	2
Relevance	20	21	15	2	2
Physical Proximity	15	21	14	6	7
Skill in Use	12	16	22	6	5
Timeliness	13	14	19	6	4

To what extent do you think the following factors influence the use of NASA technical reports in your library by engineering faculty in your institution?

	Greatly Influenced 1	2	3	4	Not Influenced 5
Accessibility	28	11	15	5	4
Ease of Use	14	13	6	13	13
Expense	7	7	10	12	26
Familiarity or Experience	23	21	14	2	2
Technical Quality or Reliability	23	14	12	2	2
Comprehensiveness	15	15	17	4	2
Relevance	25	20	9	2	0
Physical Proximity	14	18	14	6	8
Skill in Use	7	15	18	9	8
Timeliness	15	16	15	5	4

As an academic intermediary, how frequently this past year did you use:

	Frequently 1	2	3	4	Never 5	Do Not Have
Electronic Databases	37	12	7	5	3	3
Laser/Video Disc/CD-ROM	37	8	2	6	0	13
Desktop/Electronic Publishing	5	5	5	3	23	24
Electronic Bulletin Boards	7	5	9	14	18	12
Electronic Mail	27	6	8	4	12	9
Electronic Networks	18	4	9	12	11	12
FAX/TELEX	10	12	11	19	4	10

INTERMEDIARY SURVEY

As an academic intermediary, how strongly do you agree or disagree with these statements concerning:					
STAR	**Strongly Agree 1**	**2**	**3**	**4**	**Strongly Disagree 5**
The coverage is adequate	34	20	5	0	0
The category scheme is adequate	26	16	13	1	0
The announcements are current	22	18	11	2	0
The abstracts are adequate	33	19	7	0	0
IAA					
The coverage is adequate	33	13	4	0	0
The category scheme is adequate	24	11	12	0	0
The announcements are current	21	14	9	2	0
The abstracts are adequate	31	11	7	0	0
SCAN					
The announcements are current	6	7	1	0	0
SCAN is easy to use	8	3	2	1	1
SCAN is timely	7	4	2	1	0
The print quality is adequate	5	4	6	1	0
RECON					
The coverage is adequate	13	6	2	0	0
RECON is easy to use	5	5	1	4	4
The RECON database is current	8	7	1	2	0
Searches on RECON meet users research requirements	5	10	3	1	1

As an academic intermediary, how likely would you be to use the following if they were provided in electronic format?					
	Very Likely 1	**2**	**3**	**4**	**Not at All Likely 5**
STAR on CD-ROM	42	8	6	1	3
Full Text of NASA Report on CD-ROM	22	12	8	9	8
Computer Program Listings on CD-ROM	13	7	12	10	11
Numerical/Factual Data on CD-ROM	19	13	11	5	8
Images on CD-ROM	9	9	14	9	11
RECON Front-end	14	6	7	3	8
Online System for NASA Technical Reports	20	13	11	8	6

INTERMEDIARY SURVEY

How is bibliographic access provided to:			
Your NASA Technical Report Collection	**Yes**	**No**	**No Answer**
Card Catalog	29	20	16
Printed Directories	65	0	0
OPAC	24	25	16
COMCAT	2	39	24
NASA Technical Reports in Your Library			
Author	48	5	12
Title	43	7	15
Report Number	53	7	5
Subject	48	3	14
Corporate Source	48	3	14
Contract/Grant Number	41	10	14
Key Words	42	7	16

Which of the following describes how physical access to your NASA/NACA technical reports (excluding NASA special publications) is provided?			
NASA	**Circled**	**NACA**	**Circled**
Open	55	Open	45
Closed	12	Closed	13

Which of the following describes how the NASA/NACA technical reports in your library (excluding NASA special publications) are arranged?				
	NASA		**NACA**	
	Yes	**No**	**Yes**	**No**
Individually cataloged	22	27	10	32
Arranged by report numbers, by report series	52	6	50	4
Housed with the engineering materials	15	34	12	31
Housed with the government documents collection	32	20	24	22
Kept in storage	11	33	15	29

Which of the following characterizes why your library would consider discontinuing automatically receiving NASA technical reports?		
	Yes	**No**
Automatic distribution (subscription) is too costly	33	30
NASA technical reports duplicate other sources of needed information	5	54
The information contained in NASA technical reports is not timely	2	58
Not all the reports received were useful	8	52
Problems with the distribution and receipt of NASA reports	14	46
NASA contract/grant completed; no longer needed NASA reports	2	57

Approximately how many times in the past six months has your library provided the following services:

For engineering students	None	1 - 5 Times	6 - 10 Times	11 or more Times	Lots/ Many	Don't Provide
General library tour	3	14	12	15	1	11
Library presentation as part of engineering course	3	21	12	11	0	10
Library skills course	9	12	3	4	4	28
Tour of engineering library	4	16	7	9	0	19
Introduction to engineering information resources and materials	4	17	10	9	3	13
For engineering faculty						
General library tour	12	14	2	2	1	11
Library presentation as part of engineering course	16	10	1	1	0	10
Library skills course	14	1	0	0	2	28
Tour of engineering library	8	12	2	1	0	19
Introduction to engineering information resources and materials	14	9	2	0	1	13

How does your library generally learn about user needs?

	Yes	No
Requests received	67	0
Curriculum guides	34	29
In-house publications	26	34
Survey questionnaires	18	40
One-on-one interviews	66	0
Library staff meetings	49	10

In the past six months how often did your library staff attend meetings of research teams and/or was otherwise involved in research projects?

Frequently 1	2	3	4	Never 5
2	2	10	20	31

INTERMEDIARY SURVEY

Percent of your time devoted to aerospace information activities:			
0%	1-10%	11-50%	100%
1	51	10	1

Gender:		US Citizen	
Female	42	Yes	64
Male	24	No	1

Years of professional library experience:		Years in present position:	
1 to 5 Years	11	1 to 5 Years	31
6 to 10 Years	9	6 to 10 Years	13
11 to 15 Years	11	11 to 15 Years	9
16 to 20 Years	18	16 to 20 Years	9
21 to 25 Years	10	21 or More Years	3
26 or More Years	7		

Education:			
Bachelor's Degree	54	MBA	2
MLS	60	J.D.	1
Master's Degree	21	Ph.D.	2

Professional (national) membership:			
ALA	41	SLA	28
ASEE	18	Other	8
ASIS	3	None	5

TERMEDIARY SURVEY

As an academic intermediary:					
How would you rate NASA's understanding of the role you perform at your institution in meeting the technical information needs of:	**Extensive 1**	**2**	**3**	**4**	**None 5**
Engineering students	3	6	12	13	4
Engineering faculty	4	9	13	10	4
How much effort does it appear that NASA devotes to understanding the technical information needs at your institution of:					
Engineering students	3	7	8	15	11
Engineering faculty	4	8	14	13	5
How much effort do you think NASA devotes to involving you in transferring the results of NASA research at your institution to:					
Engineering students	3	3	9	16	16
Engineering faculty	4	2	10	16	14
How would you rate your knowledge of the technical information needs at your institution of:					
Engineering students	11	22	23	9	1
Engineering faculty	7	21	24	11	2
How active are you in transferring NASA produced knowledge at your institution to:	**Very Active 1**	**2**	**3**	**4**	**Very Passive 5**
Engineering students	7	16	20	12	9
Engineering faculty	6	18	16	15	9

Concerning transferrring the results of NASA research, how many times this past year:					
	None	**1 - 5**	**6 - 10**	**11 or More**	**Lots/Many**
Have you contacted NASA personnel	40	16	4	1	1
Have NASA personnel contacted you	51	8	1	0	0

As an academic intermediary, what steps or actions, if any, do you take to "actively" transfer NASA produced knowledge to the engineering students and faculty at your institution?				
	Students		**Faculty**	
	Yes	**No**	**Yes**	**No**
Screening information	18	47	22	42
Interpreting data	8	57	6	57

INTERMEDIARY SURVEY

Overall, how would you rate the following characteristics of your library's information services?

	Excellent 1	2	3	4	Poor 5	No Opinion
Funding						
Staff salaries	3	10	21	18	13	3
Materials/equipment	1	15	19	21	10	2
Searching online	10	26	13	11	6	2
CD-ROM	10	14	17	12	9	6
Innovation	4	22	23	10	5	4
Staffing						
Staff size	5	10	28	12	11	2
Aerospace experience	5	7	17	20	15	4
Science background	8	19	21	13	4	3
Services to users						
Information supplied on request	24	29	11	2	0	2
Alerting	7	7	18	15	16	5
Turnaround time	9	20	23	11	2	3
State-of-the-art	5	23	17	9	8	6
Interaction with users						
User needs surveyed	4	14	16	19	10	5
User meetings attended	2	9	17	18	12	10
Orientation/instruction	7	30	18	9	1	3

To what extent do you think the following factors influence the use of NASA technical reports in your library?

	Greatly Influenced 1	2	3	4	Not Influenced 5
Accessibility	36	15	7	5	1
Ease of Use	13	17	16	9	6
Expense	18	9	9	10	16
Familiarity or Experience	21	18	17	6	0
Technical Quality or Reliability	14	21	16	1	3
Comprehensiveness	14	22	10	8	2
Relevance	25	21	10	1	0
Physical Proximity	23	18	9	7	4
Skill in Use	14	17	20	3	3
Timeliness	17	16	16	5	3

INTERMEDIARY SURVEY

What do you see as "competition" for the engineering library in providing information to students and faculty?

	Students		Faculty	
	Yes	No	Yes	No
The "old boy" network	19	40	47	14
Personal collections	15	47	55	9
Other units within the organisation:				
Research assistants attached to projects	15	45	26	33
Department or project "libraries" not a part of your library	26	35	40	22
Direct user access to outside information sources:				
Information brokers	2	57	12	49
Publishers	4	57	20	42
Online vendors	6	55	17	46
NASA/STIF	4	57	12	49
NTIS	6	55	12	49
Direct use of national computer communications networks:				
ARPANET	4	56	14	46
Internet/NSFNET	8	51	22	37
Direct use of regional computer communications networks	9	54	22	40
Direct use of campus network (local area network):				
Online access to your library catalog	25	37	28	34
Online access to other campus libraries	11	50	14	47
Wordprocessing for transmission of text:				
Office facsimile transmission	8	52	23	37
Electronic mail	10	49	21	40
Manuscript preparation and delivery	7	50	14	43
Database creation by users:				
Information collection, storage and use	10	52	21	41
Downloading to personal files	14	49	25	38
Electronic transmission of data	12	50	21	41

INTERMEDIARY SURVEY

Which of the following services does your library provide to engineering students and faculty?				
	Students		Faculty	
	Yes	No	Yes	No
Alerting services	11	48	31	31
Bibliographic instruction	66	0	50	11
Document order and delivery	51	12	56	9
Electronic reference	50	15	51	14
Handouts and library guides	64	2	62	3
In-house SDI and routing services	7	55	25	38
Mediated online searching	63	2	63	2
NASA SCAN	10	52	15	48

Which of the following services does your library provide to engineering students and faculty?				
	Students		Faculty	
Professional time-saving assistance in:	Yes	No	Yes	No
Locating sources	64	2	66	0
Identifying documents	64	2	65	1
Acquiring information	64	2	65	1
Expert help in learning/using information	55	9	53	10
Database development	8	53	10	50
Downloading to diskettes	47	20	48	18
Remote online access to library catalog	56	12	56	11
CD-ROM workstation(s) in library	53	14	52	14
Cooperative cost-sharing services:				
Group contract for online services	17	47	16	46
Coordinated access to networks	14	48	15	48
Acquisition of most-used databases for searching online through campus computer facilities:				
Aerospace database	9	52	9	51
NTIS online	16	48	16	47
Federal Research in Progress (FEDRIP)	7	54	7	52
Energy database	8	54	8	53
Acquisition or development of user-friendly front-end systems for searching most-used databases online:				
Library online catalog searching	40	25	39	23
Gateway searching of multiple databases	12	52	12	49

Approximately how many times in the past six months has your library utilized the following sources to obtain NASA technical reports not in your collection?

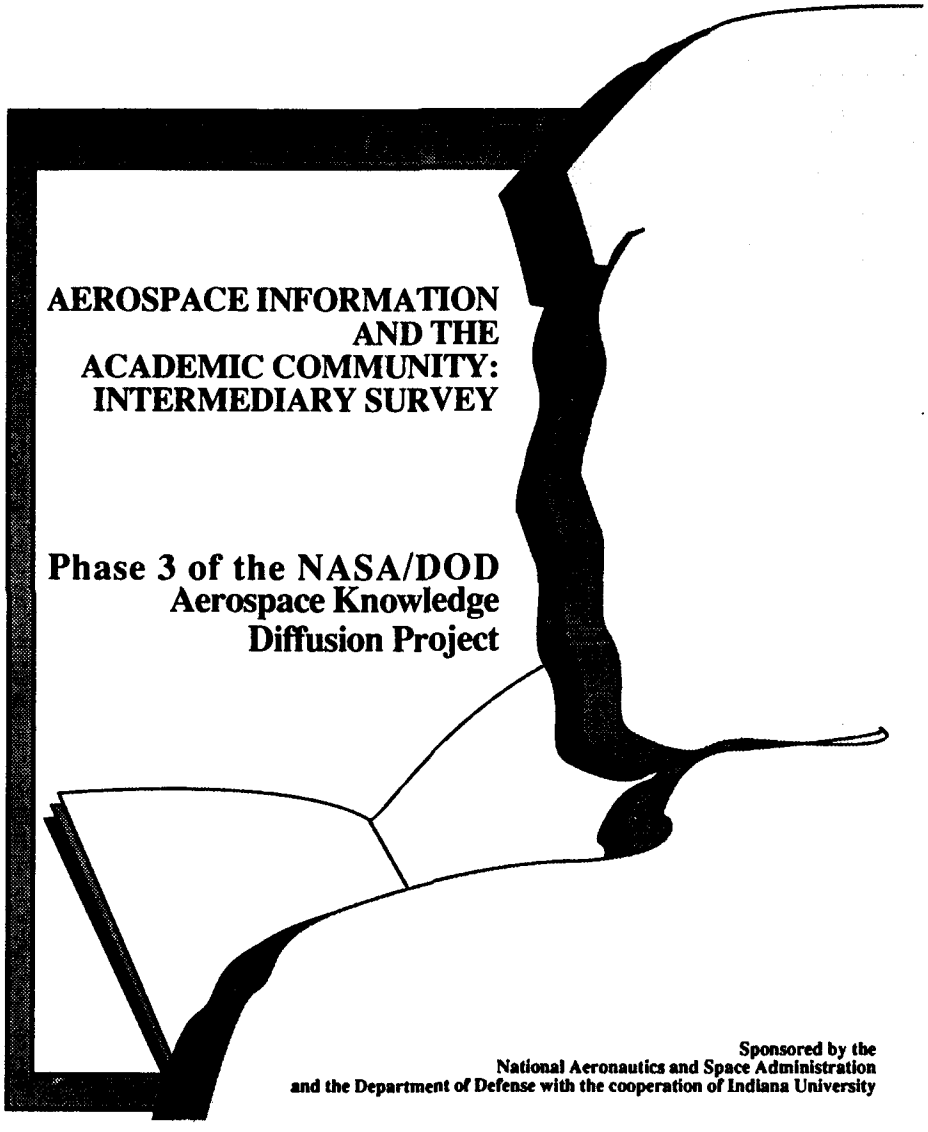
Times in the past six months	None	1 - 10	11 - 20	21 - 50	More than 50	Don't Know
NTIS	6	24	7	7	3	14
NASA STIF	21	7	0	2	0	17
DTIC	19	9	1	1	0	17
NASA field center library	21	5	0	2	1	22
NASA author	23	1	0	0	0	22
Another university library	10	18	6	2	0	18
Aerospace industry library	18	7	3	1	0	18
DDS or broker	23	2	0	1	0	19

Approximately how many times in the past six months has a NASA technical report been requested by one of your patrons but could not be obtained from your library for each of the following reasons?

Times in the past six months	None	1 - 10	11-20	21-50	More than 50	Don't Know
Your library did not own the report	2	14	11	8	7	21
Your library owned the report but it was missing	10	21	2	1	0	25
The report was in a STAR category not received by your library	11	3	1	2	0	34
The report was distributed in fiche only and your library received paper copy in that STAR category	20	1	0	0	0	27
The report was distributed in paper only and your library receives fiche copy in that STAR category	13	2	0	0	0	34
The report was listed in STAR but was not automatically distributed by NASA	6	14	2	8	1	27
The report was in a STAR category you automatically receive but you never received it	10	5	0	1	2	34
The report was referenced as a NASA publication but was not in the NASA system	12	14	2	0	0	29
The report was a classified, restricted or limited distribution document	13	14	0	0	0	28
The report was available only from the NASA center of origin	14	6	0	0	0	34
The report was available only from the author or technical monitor	13	4	0	0	0	35
Insufficient bibliographic information, did not know where or how to obtain the report	9	19	0	0	0	28

As an academic intermediary, approximately how many times in the past six months have you used the following:						
Times in the past six months	**None**	**1 - 25**	**26 - 50**	**51-100**	**More than 100**	**Do Not Have**
Print Sources:						
Applied Science and Technology Index	4	11	12	9	24	5
Engineering Index	2	16	11	9	22	7
Government Reports Announcement and Index	1	22	11	8	14	10
International Aerospace Abstracts	5	24	9	3	11	13
NASA SP-7037	25	17	1	1	2	19
NASA SCAN	19	3	1	1	2	37
NASA STAR	1	26	12	5	14	6
Science Citation Index	7	21	8	2	6	17
As an academic intermediary, approximately how many times in the past six months have you used the following:						
Electronic Sources:						
Aerospace Database	14	31	0	0	3	8
COMPENDEX	7	33	8	0	7	4
DTIC DROLS	14	4	0	0	1	39
INSPEC	7	32	11	1	4	4
NASA RECON	13	10	2	0	3	27
NTIS Online	7	33	8	0	5	6
SCISEARCH	12	34	3	2	0	5
Wilson Line Index	14	6	1	2	0	26
BRS including "After Dark"	18	5	2	2	1	28
DIALOG including "Knowledge Index"	9	12	7	8	6	11

Survey of Academic Aerospace Libraries
Survey Questionnaire


AEROSPACE INFORMATION
AND THE
ACADEMIC COMMUNITY:
INTERMEDIARY SURVEY
Phase 3 of the NASA/DOD
Aerospace Knowledge
Diffusion Project
Sponsored by the
National Aeronautics and Space Administration
and the Department of Defense with the cooperation of Indiana University

These data will provide us with some background about your library.

1. Which of the following best describes your library? (Circle number)

   1. Departmental library
   2. Aeronautical/astronautical library
   3. Engineering library
   4. Engineering/science library
   5. Branch library
   6. University (main) library
   7. Other (specify)_____

2. Is your library a Superintendent of Document (SOD) depository library? (Circle number)

   1 Yes
   2 No
   3 Don't know

These data will help us understand how your library deals with technical reports.

3. Does your library subscribe to, automatically receive, purchase, or otherwise obtain the following? (Circle numbers)

	Yes	No	Don't Know
NASA technical reports in paper	1	2	9
NASA technical reports in fiche	1	2	9
DOD technical reports in paper	1	2	9
DOD technical reports in fiche	1	2	9
FAA technical reports in paper	1	2	9
FAA technical reports in fiche	1	2	9
AGARD technical reports in paper	1	2	9
AGARD technical reports in fiche	1	2	9
U. S. aerospace company technical reports	1	2	9
U. S. university technical reports	1	2	9
AIAA papers in hard copy	1	2	9
AIAA papers in fiche	1	2	9

4. Does your library subscribe to, automatically receive, purchase, or otherwise obtain the following foreign (non-U.S.) technical reports? (Circle numbers)

	Yes	No
British ARC and RAE reports	1	2
ESA reports	1	2
French ONERA reports	1	2
German DFVLR, DLR and MBB reports	1	2
Japanese NAL reports	1	2
Swedish NAL reports	1	2
Other (specify)_____		

5. Does the aeronautical/astronautical engineering department maintain a NASA technical report collection separate from that which is kept in your library? (Circle number)

   1 Yes
   2 No
   3 Don't know

These data will help us understand the use of NASA technical reports in your library.

6. Which of the following best describes how your library routinely receives NASA technical reports? (Circle numbers)

   1 Directly from NASA
   2 From NTIS
   3 From GPO
   4 Does not routinely receive NASA technical reports
   5 Other (specify)_____

7. Which of the following best characterizes the use of the NASA technical reports in your library? (Circle number)

Heavily Used				Not Used At All	Don't Know	Don't Have a NASA Technical Report Collection
1	2	3	4	5	7	9 → Go to Q17 on page 6

8. How is **bibliographic access** provided to your NASA technical report collection? (Circle all that apply)

	Yes	No
Card catalog	1	2
Printed directories (e.g., NASA STAR)	1	2
OPAC	1	2
COMCAT	1	2
Other (specify)_____		

9. How is **bibliographic access** provided to the NASA technical reports in your library? (Circle all that apply)

	Yes	No
Author	1	2
Title	1	2
Report number	1	2
Subject	1	2
Corporate source	1	2
Contract/grant number	1	2
Key words	1	2
Other (specify)_____		

10. Which of the following describes how physical access to your NASA/NACA technical report collection is provided? (Circle all that apply)

NASA	NACA
1 Open	1 Open
2 Closed	2 Closed
3 Other (specify)_____	3 Other (specify)_____

11. Which of the following describes how the NASA/NACA technical reports in your library, (excluding NASA special publications) are arranged? (Circle all that apply)

NASA	Yes	No	NACA	Yes	No
1 Individually cataloged	1	2	1 Individually cataloged	1	2
2 Arranged by report numbers, by report series	1	2	2 Arranged by report numbers, by report series	1	2
3 Housed with the engineering materials	1	2	3 Housed with the engineering materials	1	2
4 Housed with the government documents collection	1	2	4 Housed with the government documents collection	1	2
5 Kept in storage	1	2	5 Kept in storage	1	2
6 Other (specify)_____			6 Other (specify)_____		

12. Approximately how many times in the **past six months** has your library utilized the following sources to obtain NASA technical reports **not in your collection**?

	Times in the Past Six Months	Don't Know(✓)
NTIS	____	( )
NASA STIF	____	( )
DTIC	____	( )
NASA field center library	____	( )
NASA author	____	( )
Another university library	____	( )
Aerospace industry library	____	( )
DDS or broker	____	( )
Other (specify) _____		

13. Approximately how many times in the **past six months** has a NASA technical report been requested by one of your patrons but could not be obtained from your library for each of the following reasons?

	Times in the Past Six Months	Don't Know(✓)
Your library did not own the report	____	( )
Your library owned the report but it was missing or could not be found	____	( )
The report was in a STAR category not received by your library	____	( )
The report was distributed in fiche only and your library received paper copy in that STAR category	____	( )
The report was distributed in paper only and your library receives fiche copy in that STAR category	____	( )
The report was listed in STAR but was not automatically distributed by NASA	____	( )
The report was in a STAR category you automatically receive but you never received it	____	( )
The report was referenced as a NASA publication but was not in the NASA system	____	( )
The report was a classified, restricted, or limited distribution document	____	( )
The report was available only from the NASA center of origin	____	( )
The report was available only from the author or technical monitor	____	( )
Insufficient bibliographic information, did not know where or how to obtain the report	____	( )
Other (specify)____ _____		

14. Which of the following characterizes why your library would consider ***discontinuing*** automatically receiving NASA technical reports? (Circle numbers)

	Yes	No
Automatic distribution (subscription) is too costly	1	2
NASA technical reports duplicate other sources of needed information	1	2

NASA Technical Reports

	Yes	No
The information contained in NASA technical reports is not timely	1	2
Not all the reports received were useful	1	2
Problems with the distribution and receipt of NASA reports	1	2
NASA contract/grant completed; no longer needed NASA reports	1	2

Other (specify)_____

15. *To what extent do you think the following factors influence the use of the NASA technical reports in your library* by **engineering students** in your institution? (Circle numbers)

	Greatly Influenced				Not Influenced	Don't Know
ACCESSIBILITY: the ease of getting to the information source	1	2	3	4	5	9
EASE OF USE: the ease of comprehending or utilizing the information	1	2	3	4	5	9
E: low cost in on to other information sources	1	2	3	4	5	9
OR EXPERIENCE: prior evious use of the information source	1	2	3	4	5	9
TE... AL QUALITY OR RELIABILITY: the information was expected to be the best in terms of quality, accuracy and reliability	1	2	3	4	5	9
COMPREHENSIVENESS: the expectation the information source would provide broad coverage of the available knowledge	1	2	3	4	5	9
RELEVANCE: the expectation that a high percentage of the information retrieved from the source would be used	1	2	3	4	5	9
PHYSICAL PROXIMITY: the distance to the information source	1	2	3	4	5	9
SKILL IN USE: the level of skill or skill mastery required to use the information source	1	2	3	4	5	9
TIMELINESS: the time allocated or available to produce a solution	1	2	3	4	5	9

16. To what extent do you think the following factors influence the use of the NASA technical reports in **your library** by **engineering faculty** in your institution? (Circle numbers)

	Greatly Influenced				Not Influenced	Don't Know
ACCESSIBILITY: the ease of getting to the information source	1	2	3	4	5	9
EASE OF USE: the ease of comprehending or utilizing the information	1	2	3	4	5	9
EXPENSE: low cost in comparison to other information sources	1	2	3	4	5	9
FAMILIARITY OR EXPERIENCE: prior knowledge or previous use of the information source	1	2	3	4	5	9
TECHNICAL QUALITY OR RELIABILITY: the information was expected to be the best in terms of quality, accuracy and reliability	1	2	3	4	5	9
COMPREHENSIVENESS: the expectation the information source would provide broad coverage of the available knowledge	1	2	3	4	5	9
RELEVANCE: the expectation that a high percentage of the information retrieved from the source would be used	1	2	3	4	5	9
PHYSICAL PROXIMITY: the distance to the information source	1	2	3	4	5	9
SKILL IN USE: the level of skill or skill mastery required to use the information source	1	2	3	4	5	9
TIMELINESS: the time allocated or available to produce a solution	1	2	3	4	5	9

These data will help us determine the use and importance of selected information sources and products.

17. As an academic intermediary, approximately how many times in the **past six months** have you used the following print sources in helping engineering students meet their engineering information needs?

PRINT SOURCES	Times in Past Six Months	Do Not Have (✓)
Applied Science and Technology Index	_____	( )
Engineering Index	_____	( )
Government Reports Announcement and Index	_____	( )
International Aerospace abstracts	_____	( )

PRINT SOURCES	Times in Past Six Months	Do Not Have (✓)
NASA SP-7037 (Aeronautical Engineering: A Continuing Bibliography With Indexes)	_____	( )
NASA SCAN	_____	( )
NASA STAR	_____	( )
Science Citation index	_____	( )

18. As an academic intermediary, approximately how many times in the past six months have you used the following electronic sources in helping engineering students meet their engineering information needs?

ONLINE (ELECTRONIC) DATABASES	Times in Past Six Months	Do Not Have (✓)
Aerospace Database	_____	( )
COMPENDEX	_____	( )
DTIC DROLS	_____	( )
INSPEC	_____	( )
NASA RECON	_____	( )
NTIS Online	_____	( )
SCISEARCH	_____	( )
Wilson Line Index	_____	( )
BRS including "After Dark"	_____	( )
DIALOG including "Knowledge Index"	_____	( )

19. As an academic intermediary, how important to you are the following print sources in helping engineering students meet their engineering information needs? (Circle numbers)

PRINT SOURCES	Very Important				Not at all Important	Do Not Have
Applied Science and Technology Index	1	2	3	4	5	9
Engineering Index	1	2	3	4	5	9
Government Report Announcement Index	1	2	3	4	5	9
International Aerospace Abstracts	1	2	3	4	5	9
NASA SP-7307 (Aeronautical Engineering: A Continuing Bibliography With Indexes)	1	2	3	4	5	9
NASA SCAN	1	2	3	4	5	9
NASA STAR	1	2	3	4	5	9
Science Citation Index	1	2	3	4	5	9

20. As an academic intermediary, how important to you are the following electronic sources in helping engineering students meet their engineering information needs? (Circle numbers)

ONLINE (ELECTRONIC) DATABASES	Very Important				Not at all Important	Do Not Have
Aerospace Database	1	2	3	4	5	9
COMPENDEX	1	2	3	4	5	9
DTIC DROLS	1	2	3	4	5	9
INSPEC	1	2	3	4	5	9
NASA RECON	1	2	3	4	5	9
NTIS Online	1	2	3	4	5	9
SCISEARCH	1	2	3	4	5	9
Wilson Line Index	1	2	3	4	5	9
BRS including "After Dark"	1	2	3	4	5	9
DIALOG including "Knowledge Index"	1	2	3	4	5	9

These data will help us determine the use of information technology.

21. Which of the following best represents your library's approach to paying for online search services to engineering students? (Circle only one number)

1 Not offered

2 User pays nothing for service, library or engineering department absorbs all costs

3 User pays reduced cost, library or engineering department absorbs some of the costs

4 User pays all costs

5 Other (specify) _____

22. Which of the following best characterizes your library's approach to providing online (electronic) search services to engineering students? (Circle only one number)

1 Not offered

2 Users do all searches

3 Users do most searches

4 Users do half of the searches by themselves and half through an intermediary

5 Users do most searches through an intermediary

6 Users do all searches through an intermediary

7 Other (specify) _____

23. To what extent do you think the following factors influence the use of the NASA technical reports in your library? (Circle numbers)

	Greatly Influenced				Not Influenced	Don't Know
ACCESSIBILITY: the ease of getting to the information source	1	2	3	4	5	9
EASE OF USE: the ease of comprehending or utilizing the information	1	2	3	4	5	9
EXPENSE: low cost in comparison to other information sources	1	2	3	4	5	9
FAMILIARITY OR EXPERIENCE: prior knowledge or previous use of the information source	1	2	3	4	5	9
TECHNICAL QUALITY OR RELIABILITY: the information was expected to be the best in terms of quality, accuracy and reliability	1	2	3	4	5	9
COMPREHENSIVENESS: the expectation the information source would provide broad coverage of the available knowledge	1	2	3	4	5	9
RELEVANCE: the expectation that a high percentage of the information retrieved from the source would be used	1	2	3	4	5	9
PHYSICAL PROXIMITY: the distance to the information source	1	2	3	4	5	9
SKILL IN USE: the level of skill or skill mastery required to use the information source	1	2	3	4	5	9
TIMELINESS: the time allocated or available to produce a solution	1	2	3	4	5	9

24. As an academic intermediary how frequently this past year did you use the following? (Circle numbers)

	Frequently				Never	Do Not Have
Electronic databases	1	2	3	4	5	9
Laser/Video Disc/CD-ROM	1	2	3	4	5	9
Desktop/electronic publishing	1	2	3	4	5	9
Electronic bulletin boards	1	2	3	4	5	9
Electronic Mail	1	2	3	4	5	9
Electronic networks	1	2	3	4	5	9
FAX/TELEX	1	2	3	4	5	9

25. As an academic intermediary, please indicate how strongly you agree or disagree with each of the following statements concerning the following bibliographic products. (Circle numbers)

	Strongly Agree				Strongly Disagree	Don't Know
About STAR						
The coverage is adequate	1	2	3	4	5	9
The category scheme is adequate	1	2	3	4	5	9
The announcements are current	1	2	3	4	5	9
The abstracts are adequate	1	2	3	4	5	9

	Strongly Agree				Strongly Disagree	Don't Know
About IAA						
The coverage is adequate	1	2	3	4	5	9
The category scheme is adequate	1	2	3	4	5	9
The announcements are current	1	2	3	4	5	9
The abstracts are adequate	1	2	3	4	5	9

	Strongly Agree				Strongly Disagree	Don't Know
About SCAN						
The announcements are current	1	2	3	4	5	9
SCAN is easy to use	1	2	3	4	5	9
SCAN is timely	1	2	3	4	5	9
The print quality is adequate	1	2	3	4	5	9

	Strongly Agree				Strongly Disagree	Don't Know
About RECON						
The coverage is adequate	1	2	3	4	5	9
RECON is easy to use	1	2	3	4	5	9
The RECON database is current	1	2	3	4	5	9
Searches on RECON meet users research requirements	1	2	3	4	5	9

26. As an academic intermediary, how likely would you be to use the following if they were provided in electronic format? (Circle numbers)

	Very Likely				Not at All Likely	Don't Know
STAR or CD-ROM	1	2	3	4	5	9
Full text of NASA report on CD-ROM	1	2	3	4	5	9
Computer program listings on CD-ROM	1	2	3	4	5	9
Numerical/Factual data on CD-ROM	1	2	3	4	5	9
Images (photographs) CD-ROM	1	2	3	4	5	9
RECON front-end	1	2	3	4	5	9
Online system (full text and graphics) for NASA technical reports	1	2	3	4	5	9

27. What barriers, if any, would hinder your library's adoption of the electronic information products listed in Question 26? (Please list)

1 _____
2 _____
3 _____

28. What information products or services, if any, should NASA discontinue? (Please list)

1 _____
2 _____
3 _____

29. What new information products or services, if any, should NASA consider offering? (Please list)

1 _____
2 _____
3 _____

These data will help us determine the role that academic intermediaries play in providing information and information services to engineering students and faculty.

30. Approximately how many times in the **past six months** has your library provided the following services for engineering students and faculty?

	STUDENTS	FACULTY	Don't Provide (✓)
General library tour	_____	_____	( )
Library presentation as part of engineering course	_____	_____	( )

Library Services

	STUDENTS	FACULTY	Don't Provide (✓)
Library skills course	_____	_____	( )
Tour of engineering library	_____	_____	( )
Introduction to engineering information resources and materials	_____	_____	( )

31. How does your library generally learn about user needs? (Circle numbers)

		Yes	No
1	Requests received	1	2
2	Curriculum guides	1	2
3	In-house publications	1	2
4	Survey questionnaires	1	2
5	One-on-one interviews	1	2
6	Library staff meetings	1	2
7	Other meetings	1	2
8	Other (specify) _____	1	2

32. In the **past six months** how often did your library staff attend meetings of research teams and/or was otherwise involved in research projects? (Circle number)

Frequently ... Never

1 2 3 4 5

33. Which of the following services does your library provide to engineering students and faculty? (Circle numbers)

	STUDENTS		FACULTY	
	Yes	No	Yes	No
Alerting services	1	2	1	2
Bibliographic instruction	1	2	1	2
Document order and delivery	1	2	1	2
Electronic reference	1	2	1	2
Handouts & library guides	1	2	1	2
In-house SDI and routing services	1	2	1	2
Mediated online searching	1	2	1	2
NASA SCAN	1	2	1	2
Other (specify)_____	1	2	1	2

34. Which of the following services does your library provide to engineering students and faculty? (Circle numbers)

	STUDENTS		FACULTY	
	Yes	No	Yes	No
Professional time-saving assistance in				
Locating sources	1	2	1	2
Identifying documents	1	2	1	2
Acquiring information	1	2	1	2
Expert help in learning/using information	1	2	1	2
Database development	1	2	1	2
Downloading to diskettes	1	2	1	2
Remote online access to library catalog	1	2	1	2
CD/ROM workstation(s) in library	1	2	1	2
Cooperative cost sharing services				
Group contract for online services	1	2	1	2
Coordinated access to networks	1	2	1	2
Other (specify) _____	1	2	1	2
Acquisition of most-used databases, for searching online through campus computer facilities				
Aerospace database	1	2	1	2
NTIS online	1	2	1	2
Federal Research in Progress (FEDRIP)	1	2	1	2
Energy database	1	2	1	2
Other (specify) _____	1	2	1	2
Acquisition or development of user-friendly front-end systems for searching most-used databases online				
Library online catalog searching	1	2	1	2
Gateway searching of multiple databases	1	2	1	2
Other (specify) _____	1	2	1	2

Other innovative services (specify) _____

35. Does your library provide instruction to students in how to use library resources and services? (Circle numbers)

1 Yes → Is the instruction? (Circle numbers)

2 No → Go to Q36

	Yes	No
1 Required	1	2
2 Elective	1	2
3 Non-credit	1	2
4 Credit	1	2
5 Part of an engineering course	1	2
6 Part of another course	1	2
7 Separate course	1	2
8 Other (specify)_____		

36. What do you see as "competition" for the engineering library in providing information services to students and faculty? (Circle numbers)

	STUDENTS		FACULTY	
	Yes	No	Yes	No
The "old boy" network	1	2	1	2
Personal collections	1	2	1	2
Other units within the organization				
Research assistants attached to projects	1	2	1	2
Department or Project "libraries" not a part of your library	1	2	1	2
Other (specify)_____	1	2	1	2
Direct user access to outside information sources				
Information brokers	1	2	1	2
Publishers	1	2	1	2
Online vendors	1	2	1	2
NASA/STIF	1	2	1	2
NTIS	1	2	1	2
Other (specify) _____	1	2	1	2
Direct use of national computer communications networks				
APRANET	1	2	1	2
Internet/NSFNET	1	2	1	2
Other (specify) _____	1	2	1	2
Direct use of regional computer communications networks	1	2	1	2
Direct use of campus network (local area network)				
Online access to your library catalog	1	2	1	2
Online access to other campus libraries	1	2	1	2
Other (specify) _____	1	2	1	2
Wordprocessing for transmission of text				
Office facsimile transmission	1	2	1	2
Electronic Mail	1	2	1	2
Manuscript preparation and delivery	1	2	1	2
Database creation by users				
Information collection, storage and use	1	2	1	2
Downloading to personal files	1	2	1	2
Electronic transmission of data	1	2	1	2

37. Overall, how would you rate the following characteristics of your library's information services? (Circle numbers)

	Excellent				Poor	No Opinion
Funding						
Staff salaries	1	2	3	4	5	9
Materials/equipment	1	2	3	4	5	9
Searching online	1	2	3	4	5	9
CD/ROM	1	2	3	4	5	9
Innovation	1	2	3	4	5	9
Other (specify) _____	1	2	3	4	5	9
Staffing						
Staff size	1	2	3	4	5	9
Aerospace experience	1	2	3	4	5	9
Science background	1	2	3	4	5	9
Services to users						
Information supplied on request	1	2	3	4	5	9
Alerting	1	2	3	4	5	9
Turnaround time	1	2	3	4	5	9
State-of-the-art	1	2	3	4	5	9
Other (specify) _____	1	2	3	4	5	9
Interaction with users						
User needs surveyed	1	2	3	4	5	9
User meetings attended	1	2	3	4	5	9
Orientation/instruction	1	2	3	4	5	9

38. Does your library provide instruction in engineering information resources and materials resources? (Circle number)

1 Yes → Is the instruction? (Circle numbers)

2 No → Go to Q39

	Yes	No
1 Required	1	2
2 Elective	1	2
3 Non-credit	1	2
4 Credit	1	2
5 Part of an engineering course	1	2
6 Part of another course	1	2
7 Separate course	1	2
8 Other (specify)_____		

These data will help us understand the interface between academic librarians as information intermediaries and NASA as a knowledge producer.

39. As an academic intermediary, how would you rate NASA's understanding of the role you perform in meeting the technical information needs of engineering students and faculty at your institution? (Circle number)

40. As an academic intermediary, how much effort does it appear that NASA devotes to **understanding** the technical information needs of engineering students and faculty at your institution? (Circle number)

41. As an academic intermediary, how much effort do you think NASA devotes to **involving you** in transferring the results of NASA research to the engineering students and faculty at your institution? (Circle number)

42. As an academic intermediary, what steps or actions, if any, should NASA take to increase the participation or involvement of academic librarians in transferring the results of NASA research to engineering students and faculty? (Please list)

1 _____

2 _____

3 _____

4 _____

43. In performing your professional duties as an academic intermediary about how many times in this past year, have you contacted or been contacted by NASA personnel concerning transferring the results of NASA research?

	Times This PAST YEAR
YOU contacted NASA	_____
NASA contacted YOU	_____

These data will help us understand the interface between academic librarians as information intermediaries and engineering students and faculty as users of NASA produced knowledge.

44. As an academic intermediary, how would you rate your knowledge of the technical information needs of the engineering students and faculty at your institution? (Circle number)

STUDENTS						FACULTY					
Extensive				None	Don't Know	Extensive				None	Don't Know
1	2	3	4	5	9	1	2	3	4	5	9

45. As an academic intermediary, how active are you in transferring NASA produced knowledge to the engineering students and faculty at your institution? (Circle number)

STUDENTS						FACULTY					
Very Active				Very Passive	Don't Know	Very Active				Very Passive	Don't Know
1	2	3	4	5	9	1	2	3	4	5	9

46. As an academic intermediary, what steps or actions, if any, do you take to "actively" transfer NASA produced knowledge to the engineering students and faculty at your institution? (Circle all that apply)

	STUDENTS		FACULTY	
	Yes	No	Yes	No
Screening information	1	2	1	2
Interpreting data	1	2	1	2
Other (specify) _____				

47. Please cite at least one specific case or incident that demonstrates how NASA information provided (or denied) by your library made a difference to an R&D faculty, or student project within the past year.

_____

_____

_____

Would you be willing to identify the user, for a follow-up interview? (Circle number)

1 Yes 2 No

48. As an academic intermediary, what barriers, if any, hinder or keep you from "actively" transferring NASA produced knowledge to the engineering students and faculty at your institution? (Please list)

STUDENTS	FACULTY
1 _____	1 _____
2 _____	2 _____
3 _____	3 _____

Finally, we would like to collect some background information that will be helpful with the analysis of the data.

49. Gender:

1 Female

2 Male

50. U.S. Citizen:

1 Yes

2 No

51. Years of professional library experience?

_____ years of professional experience

52. Years in your present position?

_____ years in present position

53. *Percent of your time devoted to aerospace information activities?*

_____ % of time

54. Education:

1 B. A. in _____

2 B. S. in _____

3 MLS

4 Master's in _____

5 MBA

6 J. D.

7 Ph. D. in _____

8 Other (specify) _____

55. Professional (national) membership (Circle all that apply)

1 ALA

2 ASEE

3 ASIS

4 SLA

5 Other national library or information society (specify)_____

6 Not a member of any national library or information society

OVER ——→

OPTIONAL QUESTIONS

1. What suggestions can you offer for improving access by the academic community to the results of NASA produced knowledge?

2. What suggestions can you offer regarding the structure, location, purpose, content, length and necessity of a NASA STI users meeting that would be attended by information intermediaries from academia, industry, and government?

3. Is there anything else you would care to say regarding this research?

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13. ABSTRACT *(Maximum 200 words)*

Phase 3 of a four part study was undertaken to investigate the use of scientific and technical information (STI) in the academic aerospace community. Phase 3 of this project used three questionnaires that were sent to three groups (i.e., faculty, librarians, and students) in the academic aerospace community. Specific attention was paid to the types of STI used and the methods in which academic users acquire STI. This report focuses on the responses of academic libraries. Demographic information on academic aerospace libraries is provided. Data regarding NASA interaction with academic aerospace libraries is also included as is the survey instrument.

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